

REMARKS

After entry of this amendment, claims 1-21, 23-30, and 32-33 remain pending. In the present Office Action, claims 15-23 were rejected under 35 U.S.C. § 101. Claims 1-33 were rejected under 35 U.S.C. § 102(b) as being anticipated by Dearth, U.S. Patent No. 5,907,695 ("Dearth"). Applicants respectfully traverse these rejections and request reconsideration.

Claims 1-20 and 24-29

Applicants respectfully submit that each of claims 1-20 and 24-29 recite combinations of features not taught or suggested in the cited art. For example, claim 1 recites a combination of features including: "each timestep includes at least a first phase and a second phase, and wherein each node of the plurality of nodes is configured not to cause the simulator program to evaluate a model of the different portion of the system under test during the first phase even if one or more commands are received by that node during the first phase".

The Office Action asserts that Dearth teaches the above highlighted features. Applicants respectfully disagree. Specifically, with regard to the feature "each timestep includes at least a first phase and a second phase", the Office Action asserts that "Examiner finds it inherent that a clock signal cycle has at least a first phase and a second phase. Examiner also finds that a timestep corresponds to a clock signal cycle" (Office Action, page 4, second paragraph. The Office Action then goes on to assert that "each node of the plurality of nodes is configured not to cause the simulator program to evaluate a model of the different portion of the system under test during the first phase even if one or more commands are received by that node during the first phase" is taught at col. 3, lines 44-51: "Each VBS has one of four states, namely, reape running, reape stopped, post running, post stopped. When a VBS posts, it is determined whether any other VBS of the same zone has yet to reape a previously resolved simulated bus state. If such a VBS exists, the posting VBS moves from reape running state to a post stopped state and execution of the simulation system containing the posting VBS is suspended."

The above section of Dearth teaches that a simulation system is suspended if its VBS posts and another VBS has not yet reaped a previous state. However, Dearth is silent about what happens in a suspended simulation system is a command is received by that system. In fact, all Dearth appears to teach with regard to a suspended simulation is that "When the last VBS of the zone reaps the previously resolved simulated bus state of the bus of the zone, all VBSs in post stopped state 308 move to post running state 306 and execution of each simulation which includes such a VBS is resumed" (Dearth, col. 5, lines 48-52). Thus, it appears that Dearth does not communicate with a VBS in the post stopped state until all VBSs have reaped the previous state, at which time Dearth signals the stopped VBSs to continue. None of the above teaches or suggests "even if one or more commands are received by that node during the first phase". Furthermore, none of the above teaches or suggests "each node of the plurality of nodes is configured not to cause the simulator program to evaluate a model of the different portion of the system under test during the first phase even if one or more commands are received by that node during the first phase" as recited in claim 1. In some embodiments, a test node in a distributed simulation system may use the first phase to collect state from several nodes in the system (or repeatedly query the same node) without the simulation models changing state via evaluation of the model, for example.

Furthermore, given the Office Action's assertion that the clock signal has phases and the first and second phase are those of the clock signal, Applicants assert that the Office Action has failed to show that Dearth teaches "each node of the plurality of nodes is configured not to cause the simulator program to evaluate a model of the different portion of the system under test during the first phase" of the clock signal and "each node of the plurality of nodes is configured to cause the simulator program to evaluate the model during the second phase". Rather, Dearth's focus is on posting and reaping signals, all of which occurs in the same phase of the clock signal as illustrated in Fig. 8. Furthermore, Dearth's system evaluates the model in both phases of the clock signal, for all commands. Dearth may suspend simulation during the high phase of the clock signal until all nodes have reaped or posted, but all commands received during the high phase of the clock appear to cause the model to evaluate.

For at least all of the above stated reasons, Applicants submit that claim 1 is patentable over the cited art. Claims 2-14 depend from claim 1, and thus are patentable over the cited art for at least the above stated reasons as well. Each of claims 2-14 recite additional combinations of features not taught or suggested in the cited art.

Claim 15 recites a combination of features including: "process a first one or more commands received during a first phase of a timestep without causing a simulator program to evaluate a model". The same teachings of Dearth highlighted above with regard to claim 1 are alleged to teach the above highlighted features of claim 15. Applicants respectfully submit that Dearth's teachings also do not teach or suggest the above highlighted features of claim 15. Accordingly, Applicants submit that claim 15 is patentable over the cited art. Claims 16-20 depend from claim 15, and thus are patentable over the cited art for at least the above stated reasons as well. Each of claims 16-20 recite additional combinations of features not taught or suggested in the cited art.

Claim 24 recites a combination of features including: "receiving a first one or more commands in a node of a distributed simulation system during a first phase of a timestep; processing the first one or more commands without causing a simulator program to evaluate a model". The same teachings of Dearth highlighted above with regard to claim 1 are alleged to teach the above highlighted features of claim 24. Applicants respectfully submit that Dearth's teachings also do not teach or suggest the above highlighted features of claim 24. Accordingly, Applicants submit that claim 24 is patentable over the cited art. Claims 25-29 depend from claim 24, and thus are patentable over the cited art for at least the above stated reasons as well. Each of claims 25-29 recite additional combinations of features not taught or suggested in the cited art.

Claims 21, 23, 30 and 32

Applicants respectfully submit that each of claims 21, 23, 30, and 32 recite combinations of features not taught or suggested in the cited art. For example, claim 21 recites a combination of features including: "wherein the instructions are configured to

signal the end of either the first phase or the second phase responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes".

The Office Action alleges that Dearth anticipates the above highlighted features (originally in claim 22), citing Dearth's summary (col. 3, line 20-col. 4, line 28) and Fig. 5 and its description. However, Applicants can find no teaching or suggestion of a no-operation packet in the cited sections. Furthermore, the cited section does not teach or suggest "signal the end of either the first phase or the second phase responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes." To anticipate a claim, the cited reference must teach EACH and EVERY FEATURE of the claim. Since Dearth fails to do so, Applicants respectfully submit that the rejection is not supported by the art and must be rescinded. Instead, Dearth appears to cause the suspension of simulation, as highlighted above with respect to claim 1, to ensure that all nodes have posted before a node reaps and to ensure that all nodes have reaped previous state before a node posts. While Dearth's system may be sufficient for a synchronous bus, Dearth's system has limitations. For example, Dearth's system may not properly handle asynchronous signals (which may change state in the same timestep in response to a change on the input).

For at least all of the above stated reasons, Applicants submit that claim 21 is patentable over the cited art. Claim 23 depends from claim 21, and thus is patentable over the cited art for at least the above stated reasons as well. Claim 23 recites additional combinations of features not taught or suggested in the cited art.

Claim 30 recites a combination of features including: "signaling the end of the first phase is responsive to receiving a no-operation packet from each of the plurality of nodes subsequent to transmitting a command other than a no-operation packet to at least one of the plurality of nodes". The same teachings of Dearth highlighted above with regard to claim 21 are alleged to teach the above highlighted features of claim 30.

Applicants respectfully submit that Dearth's teachings also do not teach or suggest the above highlighted features of claim 30. Accordingly, Applicants submit that claim 30 is patentable over the cited art. Claim 32 depends from claim 30, and thus is patentable over the cited art for at least the above stated reasons as well. Claim 32 recites additional combinations of features not taught or suggested in the cited art.

Claim 33

Applicants respectfully submit that claim 33 recites a combination of features not taught or suggested in the cited art. For example, claim 33 recites "a first node of the plurality of nodes is configured to cause the simulator program to evaluate the model in response to receiving a first command including one or more signal values for signals of the model during a first timestep, and wherein the first node is configured to cause the simulator program to re-evaluate the model in response to receiving a second command including one or more signal values for signals of the model during the first timestep".

The Office Action alleges that Dearth teaches the above highlighted features, citing col. 3, lines 44-51 and 56-62. However, these teachings are: "Each VBS has one of four states; namely, reap running, reap stopped, post running, post stopped. When a VBS posts, it is determined whether any other VBS of the same zone has yet to reap a previously resolved simulated bus state. If such a VBS exists, the posting VBS moves from reap running state to a post stopped state and execution of the simulation system containing the posting VBS is suspended...When the last VBS of a zone reaps the previously resolved simulated bus state, all simulation systems which contain VBSs of the zone in a post stopped state, i.e., simulation systems whose execution is suspended, are awakened, i.e., execution of such simulation systems is resumed. In addition, each of the VBSs of the zone in the post stopped state move to the post running state." This section teaches suspending systems if another VBS has yet to reap a previous state when the VBS is ready to post, and resuming the simulation when all VBSs have reaped. This suspending and resuming of a simulation has nothing to do with evaluating and re-evaluating a model in response to commands. Instead, simulation is resumed where the

simulation left off, without attempting to reevaluate. The above operation may permit, in some embodiments, an asynchronous signal to be simulated correctly, for example.

Section 101 Rejection

The section 101 rejection states that claimed subject matter of claims 15-23 is non-functional descriptive material. Applicants respectfully disagree. Claims 15-23, as filed, recited instructions which, when executed, performed various operations as recited in the claims. Instructions are functional descriptive material (See MPEP 2106(IV)(B)(1)(a)).

Additionally, the section 101 rejection asserted that claims 15-23 do not have a positive recitation that the carrier medium has executable computer code that when executed causes a computer to perform steps in the claims. Applicants respectfully disagree that this is a requirement. Rather, the instructions need merely be provided on a computer readable medium (see again MPEP 2106(IV)(B)(1)(a), second paragraph). However, merely to expedite prosecution, Applicants have amended independent claims 15 and 21 to recite "instructions which, when executed on a computer" ... Applicants respectfully submit that this amendment overcomes the rejection.

Finally, the section 101 rejection asserts that the carrier medium recitation in claims 15-23 is sufficiently broad to include air or electromagnetic fields. Applicants have amended claims 15-23 to recite a computer readable medium, and respectfully submit that the rejection is addressed.

Information Disclosure Statement (IDS)

Applicants note that an additional IDS was filed on July 21, 2005. Applicants respectfully request consideration of the IDS and a return of the PTO-1449 form included therewith, initialed and signed by the Examiner to evidence such consideration. Additionally, filed herewith is another IDS.

Interview Summary

On October 20, 2005, the undersigned conducted an Examiner's interview with Examiner Sharon. Proposed claim amendments similar in nature to those made herein were discussed. The prior art was also discussed, including Dearth. Arguments similar to those presented above were discussed, highlighting reasons why the amended claims are patentable over the cited art.

CONCLUSION

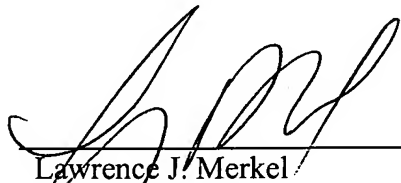
Applicants submit that the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5181-97900/LJM.

Also enclosed herewith are the following items:

- ☒ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Request for Approval of Drawing Changes
- ☐ Notice of Change of Address
- ☒ Please debit the deposit account listed above in the amount of \$180 for fees (\$180 IDS fee).
- ☒ Other: IDS

Respectfully submitted,



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